CLAIMS

What is claimed is:

1.　　A system for determining S-parameters of a network, comprising:

an S-parameter calculator that computes the S-parameters of the network based on waveform parameters determined based on single port measurements implemented at each of plural ports of the network.

2.　　The system of claim 1, the waveform parameters comprise information related to at least one of a transmission and a reflection of a signal provided at the single port.

3.　　The system of claim 1, the S-parameter calculator determines reflection coefficients based on the waveform parameters, the S-parameter calculator determining the S-parameters based on the reflection coefficients.

4.　　The system of claim 3, the reflection coefficients comprise values functionally related to a transmission and a reflection of a signal provided at the single port.

5.　　The system of claim 1, the network is a two-port network comprising first and second ports, the single port measurements comprising measurements implemented at at least three of:

the first port while the second port is open;

the first port while the second port is shorted;

the second port while the first port is open; and

the second port while the first port is shorted.

6.　　The system of claim 1, the S-parameter calculator determines reflection coefficients based on waveform parameters, the reflection coefficients comprising at least three of:

a first reflection coefficient of a first port while each of the other plural ports is open;

a second reflection coefficient of the first port while each of the other plural ports is shorted;

a third reflection coefficient of a second port while each of the other plural ports is open; and

a fourth reflection coefficient of the second port while each of the other plural ports is shorted.

7. The system of claim 1, the S-parameter calculator computes the S-parameters of the network based on a subset of less than all possible reflection coefficients for the network.

8. The system of claim 1, further comprising a network analyzer for performing the single port measurements.

9. The system of claim 1, the network is a passive multi-port network.

10. A system for determining S-parameters of an n-port network, n being a positive integer, the system comprising:

a reflection coefficient engine that provides a subset of at least n-1 reflection coefficients associated with ports of the multi-port network; and

an S-parameter calculator that computes the S-parameters for the n-port network based on the subset of reflection coefficients.

11. The system of claim 10, the reflection coefficient engine provides the subset of reflection coefficients based on single port measurements performed at each of the ports of the n-port network.

12. The system of claim 11, n equals two, such that the n-port network includes first and second ports, the single port measurements comprising measurements implemented at at least three of:

the first port while the second port is open;

the first port while the second port is shorted;

the second port while the first port is open; and

the second port while the first port is shorted.

13. The system of claim 10, the set of reflection coefficients comprising a subset of less than all possible reflection coefficients for the network.

14. A system for determining S-parameters of a network, the system comprising:

means for determining at least one of waveform parameters and reflection coefficients based on single port measurements of the network; and

means for computing S-parameters of the network based on the at least one of waveform parameters and reflection coefficients.

15. The system of claim 14, further comprising means for performing single port measurements to enable a determination of the at least one of waveform parameters and reflection coefficients, the determining means computes the at least one of waveform parameters and reflection coefficients based on the single port measurements.

16. The system of claim 14, further comprising means for selecting a set of the reflection coefficients to be implemented by the determining means.

17. The system of claim 16, the set of reflection coefficients comprising a subset of less than all possible reflection coefficients for the network.

18. The system of claim 14, wherein the computing means comprises means for determining plural sets of the S-parameters for the network based on different respective sets of the reflection coefficients.

19.   The system of claim 18, wherein the computing means comprises means for averaging determined S-parameters for at least some of the plural sets of S-parameters.

20.   A method for determining S-parameters of a network comprising the steps of:
        determining waveform parameters based on single port measurements performed at plural ports of the network; and
        determining S-parameters of the network based on the waveform parameters.

21.   The method of claim 20, the determination of S-parameters further comprises:
        determining reflection coefficients based on the waveform parameters; and
        determining the S-parameters based on the reflection coefficients.

22.   The method of claim 20, further comprising implementing single port measurements at each of the plural ports to provide the signal port measurements.

23.   The method of claim 22, the network comprising a two-port network having first and second ports, the measurement of waveform parameters comprising at least three of:
        measuring waveform parameters at the first port while the second port is open;
        measuring waveform parameters at the first port while the second port is shorted;
        measuring waveform parameters at the second port while the first port is open; and
        measuring waveform parameters at the second port while the first port is shorted.

24. The method of claim 20, the network comprising a two-port network having first and second ports, the determination of S-parameters further comprising at least three of:

determining a first reflection coefficient of the first port while the second port is open;

determining a second reflection coefficient of the first port while the second port is shorted;

determining a third reflection coefficient of the second port while the first port is open; and

determining a fourth reflection coefficient of the second port while the first port is shorted.

25. The method of claim 20, the determination of S-parameters comprises:

selecting equations for determining reflection coefficients;

implementing the selected equations to determine a subset of reflection coefficients for the network based on the waveform parameters; and

determining the S-parameters based on the reflection coefficients.

26. The method of claim 20, the determination of S-parameters comprises using different S-parameter equations to determine a plurality of values for the same S-parameter and averaging the plurality of values.

27. The method of claim 19, the step of determining S-parameters comprises using different S-parameter equations to determine a plurality of values for the same S-parameter and comparing the values to facilitate verifying accuracy of the S-parmeters.

28. A computer-readable medium having computer-executable instructions for performing a method comprising:

receiving waveform parameters based on single port measurements performed at plural ports of the network; and

determining S-parameters of the network based on the waveform parameters.

29.   A computer-readable medium having computer-executable instructions for performing a method comprising:

determining reflection coefficients based on single port measurements performed at plural ports of the network; and

determining S-parameters of the network based on the reflection coefficients.